

FY 65  
BUDGET

[REDACTED]

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Basis For Budget

Brief summaries follow of seven projects which we are submitting for the FY 65 Budget on Contract [REDACTED]

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1. Optical Design for Film Viewing

There is an urgent need for improved definition in variable magnification microscope type viewers for high quality aerial photographs. We propose to explore design possibilities of a system to provide large exit pupils (5mm), improved definition, variable magnification (possibly zoom), restricted wavelength range.

2. 10X Color Lens for the 10-20-40X Enlarger

We propose to explore possible designs for 10X lens suitable for color enlargements on the 10-20-40X Enlarger. Three possible designs are to be considered:

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- (1) A 100mm version of the 52mm ELCAN lens [REDACTED]
- (2) A 100mm version of the Tropel design #5829 corrected for three narrow spectral bands.
- (3) A 100mm version of the [REDACTED] document reproduction lens.

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3. Redesign the 10-20-40X Precision Enlarger Lamphouse for Color Printing

We propose to design, build and test a lamphouse modification to provide convenient color balance control and the necessary filtering to make color prints on 10-20-40X Enlargers equipped with suitable lenses.

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#### 4. Automated Edge Trace Device

There is a need for continuing development of instruments to refine and reduce the labor required in Image Quality measurements based upon the analysis of microdensitometer measurements. Examples of the needed developments are:

- (1) A microdensitometer which can accept and scan any point in any azimuth on roll form negatives or prints,
- (2) Automatic focus control in the microdensitometer,
- (3) Automatic recording of data to permit its reduction by the computer, etc.

#### 5. Automation Program Study

In order to expedite the accurate transfer of information from the PI to the Lab Technician, we propose to study the problem of automating the system from the viewing table to the 10-20-40X Enlarger, contact chip printer, 4X chip enlarger and other types of print making equipment.

Breadboards will be constructed to test the ideas developed under the study phase of this program.

#### 6. MTF Exposure Device

We propose to develop and fabricate a device to expose special patterns specifically for use in the measurement of Modulation Transfer Function. This device will produce calibrated exposures of pattern structures ranging from low to high spatial frequencies upon a variety of films as used in modern reconnaissance photography.

#### 7. Vectograph Study

It is proposed that a study be made of the use of the Vectograph process for production of stereo pairs for PI use in briefing, joint study, etc.

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Comments on [ ] proposed projects for FY-65

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[ ] will send us additional information, within the next two months, on each of the following proposed projects. They will send the PAR's one at a time as they are prepared.

1. Optical Design for Film Viewing:

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[ ] had nothing to add to this, other than their intention to provide more information in a month or two.

2. 10x Color Lens for the 10-20-40x Enlarger:

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I told [ ] that this appeared to duplicate the work being done on a 20x lens under PAR 3, Contract [ ] stated that, as a result of the preliminary investigation under PAR 3, [ ] had decided to use a modification of a "Tropel" lens instead of designing an entirely new 20x lens. [ ] still feels that an entirely new 10x lens is necessary. The final report on the 20x lens (under PAR 3, Contract [ ]) will be ready in 30-40 days. We will get a copy of this final report as a part of the proposal on the 10x color lens.

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3. Redesign the 10-20-40x Precision Enlarger Lamphouse for Color Printing:

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[ ] is writing a proposal on this to send to [ ] PSD/NPIC, through [ ] to send us a copy of the proposal when it was ready as we would undoubtedly be involved in the development of the lamphouse.

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4. Automated Edge Trace Device:

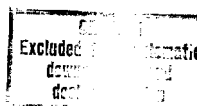
Much of the cost of the Micro-D edge trace measurements of mission photography (PAR-226) was due to the use of time-consuming manual means to smooth the density curves into a more-usable form. This new project would involve digitizing the output of the microdensitometer and using a computer to draw a smooth curve.

5. Automation Program Study:

This idea has been discussed in P&DS in the past. The information necessary to locate the area to be enlarged (frame number and x-and y-coordinates in the frame), the degree of enlargement, etc., are recorded on a magnetic or paper tape by the PI. The tape and the negative are placed on the contact printer or enlarger and the usual "black boxes" position the proper area in the exposure station, make the exposure and advance the film to the next desired frame. This could possibly involve the use of our computer as a central control.

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Comments on  proposed projects for FY-65

6. MTF Exposure Device:

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proposes to make two of these devices -- one for our use and one for their use. They believe that by using identical devices and identical procedures there would be better correlation in the resulting data.

7. Vectograph Study:

This study will stress the use of vectographs as a briefing aid.

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